REMARKS

In the Specification

Although not raising a rejection or objection, the Office Action states that a brief summary of the invention is required, citing MPEP 608.01. However, Applicants would respectfully like to point out that both the M.P.E.P. and 37 C.F.R. §1.73 do not require the presence of a "Summary of the Invention" in a patent application. They merely indicate where in the application the "Summary of the Invention" should be placed if Applicants were to elect to include one.

In particular, 37 C.F.R. §1.73 only states that "[a] brief summary of the invention ... should precede the detailed description." 37 CFR § 1.73 does not state "must" or "shall", but rather states "should", indicating that the choice is recommended but optional. Accordingly, Applicants have elected not to include a "Summary of the Invention" as this is within the discretion of Applicants.

In the Drawings

The drawings have been objected to for lack of labels on certain numbered elements. Proposed drawing changes have been submitted, marked in red, to overcome the objection.

In the Claims

In responding to the restriction requirement, Applicant previously elected to prosecute claims 1-10 and cancelled claims 11-23, but inadvertently omitted canceling claims 24-30. Claims 24-30 have now been cancelled.

Claims 1-2, 8 and 10 have been rejected under 35 USC 102(e) as being anticipated by U.S. patent no. 6,163,233 ("Adkins"). Applicant respectfully traverses this rejection because the cited reference does not disclose every element of any of the rejected claims, as the following analysis shows.

Independent claim 1 recites an optical waveguide. This term has been moved from the preamble, where it had no patentable significance, to the body of the claim. Claims 2-10 have also been amended to maintain consistency in the preambles.

The Adkins reference discloses an electrical waveguide, not an optical waveguide as required by claim 1. Further, claim 1 recites transparent material disposed in the opening. The rejection cites col. 5 lines 4-6 as disclosing transparent material in the form of epoxy resin. Even pure epoxy is not necessary optically transparent. However, the reference actually places a conductive material, using a mixture of copper and epoxy resin, into the vias. Conductive materials are by nature not optically transparent, and the copper that Adkins cites would destroy any transparent qualities that the resin might possess.

Claims 2, 8 and 10 depend from claim 1 and therefore contain the same limitations not disclosed by Adkins.

Claim 9 has been rejected under 35 USC 103(a) as being unpatentable over Adkins. Applicant respectfully traverses this rejection because the reference does not disclose or recite every element of the claim, as the following analysis shows.

Claim 9 recites an electromagnetic detector at the end of the opening. The circuit component of Adkins that is referenced in the rejection (a resistor 133) is not located at the

end of any opening, but is buried in the structure away from any openings. The rejection further states that it would be obvious to substitute a detector of electromagnetic radiation for a resistor since the device could then be used to control impedance signal tracks. A detector of electromagnetic radiation is not used to control impedance signal tracks, it is used to detect light, and thus there is no motivation in Adkins to make this substitution. Further, there is no motivation to find a way to control impedance signal tracks in Applicant's invention, since Applicant's claims are directed to the transmission of light, which is not affected by electrical impedance.

Claims 3-7 have been rejected under 35 USC 103(a) as being unpatentable over Adkins in view of U.S. patent no. 5,219,787 ("Carey"). Applicant respectfully traverses this rejection because the cited references do not disclose or suggest every element of any of the rejected claims, as the following analysis shows.

Each of claims 3-7 depends from claim 1 and therefore contains all the limitations of claim 1. As previously stated, Adkins does not disclose all these limitations. Carey does not provide the missing limitations, since Carey also does not disclose or suggest an optical waveguide with openings through it.

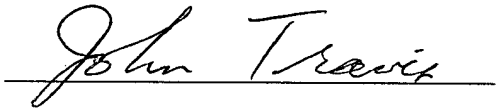
CONCLUSION

For the foregoing reasons, Applicant submits that claims 1-10 are now in condition for allowance, and indication of allowance by the Examiner is respectfully requested. If the Examiner has any questions concerning this application, he or she is requested to telephone the undersigned at the telephone number shown below as soon as possible. If any fee insufficiency or overpayment is discovered, please charge any insufficiency or credit any overpayment to Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY SOLOKOFF TAYLOR & ZAFMAN LLP

Date: 1-29-03



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APPENDIX A

Marked-up version of amended claims

1. (Amended once) An apparatus comprising:

a multi-level optical waveguide comprising[:]

a first substrate having a first opening therethrough;

a second substrate, attached to said first substrate, having a second opening therethrough and aligned with the first opening in said first substrate;

a first optically transparent material [inserted] disposed in said first substrate hole; and

a second optically transparent material [inserted] disposed in said second substrate hole.

2. (Amended once) The [multi-level waveguide] apparatus of claim 1, wherein said transparent material is a gas.

3. (Amended once) The [multi-level waveguide] apparatus of claim 1, wherein said transparent material is cladding grown on the inside of the substrate hole.

4. (Amended once) The [multi-level waveguide] apparatus of claim 1, wherein said transparent material is comprised of an outer cladding and a separate inner transparent material.

5. (Amended once) The [multi-level waveguide] apparatus of claim 1, wherein said transparent material is an optical fiber.

6. (Amended once) The [multi-level waveguide] apparatus of claim 1, wherein said first substrate is made of silicon.

7. (Amended once) The [multi-level waveguide] apparatus of claim 1, wherein said transparent material and said first substrate are made of [the] a same material.

8. (Amended once) The [multi-level waveguide] apparatus of claim 1 further comprising a source of electromagnetic radiation attached to said first substrate.

9. (Amended once) The [multi-level waveguide] apparatus of claim 1 further comprising a detector of electromagnetic radiation [attached to] disposed at an end of said second [substrate] opening.

10. (Amended once) The [multi-level waveguide] apparatus of claim 1 further comprising a conductive layer on said second substrate.

11-30. (Cancelled)